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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,118	10/17/2003	Kenneth Douglas Vinson	9066M2	9231

27752 7590 10/25/2006

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EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	**PAPER NUMBER**
1731	

DATE MAILED: 10/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/688,118	VINSON, KENNETH DOUGLAS	
	Examiner	Art Unit	
	Dennis Cordray	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Declaration

The Declaration under 37 CFR 1.132 filed 8/25/2006 is acknowledged but is insufficient to overcome the rejection of claims 1-20 based upon Barnholtz et al in view of Anderson as set forth in the last Office action.

Applicant argues on p 2 that Anderson only teaches inversion of a polymer emulsion into an aqueous phase optionally containing water-soluble materials and not into an already formed oil-in-water emulsion. Applicant further argues that the presence of the oil phase in the oil-in-water (O/W) emulsion would be expected to interfere with the inversion by reducing the water activity available to invert the emulsion. In support of the argument, Applicant cites the publication of Miller et al (Miller, D. J.; Henning, T.; Grunbein, W; Phase inversion of W/O emulsions by adding hydrophilic surfactant - a technique for making cosmetics products, Colloids and Surfaces A: Physicochemical and Engineering Aspects, p 687) as describing that phase inversion takes place only after certain critical quantities of water are added to a water-in-oil (W/O) emulsion.

Miller et al provides a general phase inversion diagram to describe the phase properties of W/O and O/W emulsions (p 683, Figure 2). Miller et al also describes inversion of W/O emulsions to O/W emulsions by adjusting the effective HLB of the surfactant via adding a hydrophilic emulsifier (p 681, Abstract; p 684, Figure 4; p 687, section 3.2). Considering Figure 2, the range of water concentration where addition of a hydrophilic surfactant will cause a phase inversion from W/O to O/W is broad, from about 10 to 90% water. Anderson discloses W/O emulsions containing a high

molecular weight polymer with oil:water ratios between 5:1 and 1:10 (approximately 17 to 91% water) (col 2, lines 65-69), which significantly overlaps the above range from Miller et al. Anderson also discloses that the most convenient method of affecting the inversion is by adding a surfactant to the W/O emulsion or to the aqueous phase into which it is inverted. The preferred surfactant is a hydrophilic surfactant (col 4, lines 3-18). Adding the W/O emulsion to an aqueous phase containing an amount of water within the range of 17 to 91% and inverting the W/O phase would result in a final composition comprising from 17 to 91% water by a simple mass balance calculation. Alternatively, by using a similar mass balance argument, if the initial W/O phase contains water within the range of 17 to 91% and the final mixed composition after inversion into the aqueous phase contains water within the range of 17 to 91%, then the initial aqueous destination phase must also have a water concentration within the range of 17 to 91%. In other words, where the starting W/O phase and the final mixed composition after inversion have water concentrations in the range taught by Miller et al wherein addition of a sufficient amount of hydrophilic surfactant will cause the W/O to O/W phase inversion, then one of ordinary skill in the art would expect to be able to make the inversion successfully.

Barnholtz et al discloses an example of a final softening composition comprising approximately 47% water (which borders on and can overlap the claimed amount of less than about 45% water) (pp 39-42, Example 1) and which falls near the center of the above range of 17-91% water taught by Miller et al. Thus, an adequate amount of water exists in the composition of Barnholtz et al for the phase inversion and addition of a high

molecular weight polymer via the phase inversion method of Anderson would be would be obvious to try and also have a reasonable expectation of success. Determination of the amount of surfactant needed to affect the phase inversion would be a matter of routine experimentation by one of ordinary skill in the art.

Response to Arguments

Applicant's arguments filed 8/25/2006 with respect to the rejection of Claims 1-20 under 35 U.S.C. 103(a) have been fully considered but they are not persuasive.

The Declaration under 37 CFR 1.132 has been discussed above. Applicant argues on p 6, 2nd paragraph that one of ordinary skill in the art would not understand Anderson to teach the inversion of a W/O emulsion in to an O/W emulsion. The rational to modify or combine the prior art does not have to be expressly stated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law. *In re Fine,* 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). As discussed above in response to the Declaration, the teachings of Miller et al regarding the amount of water needed to affect a successful W/O to O/W phase inversion would have been known to one of ordinary skill in the art and would have made it obvious to try the method of Anderson to add the high molecular weight polymer to the softening composition of Barnholtz et al with a reasonable expectation of success by using only routine experimentation. The remaining arguments have been addressed in previous Office Actions.

The rejection is maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnholtz et al (WO 02/48458) in view of Anderson (3624019).

Barnholtz et al discloses an aqueous composition for softening an absorbent tissue (Abstract) comprising:

- A quaternary ammonium softening active ingredient (p 15, lines 24-25) that comprises at least 35% of the composition (p 53; claim 7);
- An electrolyte that can be present in an amount up to 25% of the composition (p 21, lines 14-15);
- A vehicle in which the softening active ingredient is dispersed, which vehicle can be water (p 20, lines 15, 23-24);
- A high molecular weight polymer, present in an amount between 0.01% and 5% of the composition (p 33, lines 16-20), which modifies the rheology of the aqueous composition (p 30, lines 10-12);
- Optionally, a plasticizer in an amount between 5% and 75% of the composition (col 19, lines 14-17);
- Optionally, a bilayer disruptor in an amount between 2% and 15% of the level of active ingredient (col 22, lines 27-28).

Softening agents can also include waxes, mineral oil, silicone oil, petrolatum, quaternary ammonium compounds with long alkyl chains, fatty acids, fatty alcohols and fatty esters, many of which would form oil-in-water emulsions (p 3, lines 6-13). The particularly preferred softening active ingredient is a mono or diester quaternary ammonium compound (p 16, line 24 to p 17, line 5) having the formula

$$(R_1)_{4-m} - N^+ - [(CH_2)_n - Y - R_3]_m \quad X^-$$

wherein Y is -O-(O)C-, or -C(O)-O-, or -C(O)-O-, or -NH-C(O)-, or -C(O)-NH-;

m is 1 to 3 (mono-, di- or tri-ester);

n is 0 to 4;

each R1 is a C1-C6 alkyl or alkenyl group, hydroxyalkyl group, hydrocarbyl or substituted hydrocarbyl group, alkoxylated group, benzyl group, or mixtures thereof;

each R3 is a C13-C21 alkyl or alkenyl group, hydroxyalkyl poup, hydrocarbyl or substituted hydrocarbyl group, alkoxylated group, benzyl group, or mixtures thereof; and

X- is any softener-compatible anion.

Barnholtz et al discloses tissue paper (inherently one or more plies) made using the composition that contains approximately 47% water (which borders on and can overlaps the claimed amount of less than about 45% water) (pp 39-42, Example 1). Barnholtz also discloses applying the softening composition by a spray applicator (p 38, lines 5-6) and that the softening composition is deposited as uniform, discrete surface deposits, spaced apart at a frequency between 5 areas per lineal inch and 100 areas per lineal inch (p 51, claim 2).

Barnholtz et al does not disclose adding the high molecular weight polymer via a water-in-oil emulsion containing the high molecular weight polymer. Barnholtz et al also does not teach that the high molecular weight polymer is a cationic polymer.

Anderson et al discloses a a method for adding a high molecular weight polymer to a continuous aqueous phase as a water-in-oil emulsion (col 1, lines 33-42, col 2, lines 12-13). The emulsion can comprise 2-75% by weight of the polymer to be commercially practical (col 3, lines 36-40). The oil to water ratio in the emulsion be from 5:1 to 1:10 as a general rule (col 2, lines 65-67). Thus the water can be present in an amount from 9% to 89% of the emulsion and the oil can be present in an amount from 9% to 81% of the emulsion. The compositional range encompasses the claimed range. Anderson teaches that inversion of the water-in-oil emulsion in water causes the high molecular weight polymer to be rapidly dispersed into the water and overcomes the problem of needing lengthy agitation times to obtain complete dissolution of the polymer (col 1, lines 16-35). Anderson also teaches that the polymers exhibit superior thickening properties in aqueous solutions (i.e.-are rheology modifiers) and are used in papermaking processes (col 1, lines 4-9).

Anderson et al teaches that cationic, anionic or nonionic high molecular weight polymers can be rapidly dissolved into aqueous solution using a water-in-oil emulsion (col 2, lines 1-11) and that the invention is capable of rapidly providing aqueous dispersions having concentrations of 0.1 to 20% by weight of water soluble polymers, which significantly overlaps the claimed range (col 2, lines 27-30).

The art of Barnholtz et al, Anderson et al and the instant invention are analogous in that they pertain to aqueous solutions containing dispersed polymers used in papermaking processes and the problem of efficiently obtaining dissolution of a high molecular weight polymer into an aqueous solution.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a water-in-oil emulsion having the claimed composition to add the high molecular weight polymer to the softening composition of Barnholtz et al in view of Anderson et al in order to rapidly disperse the high molecular weight polymer in the aqueous solution. It would also have been obvious to one of ordinary skill in the art at the time of the invention to make the high molecular weight polymer cationic as a functionally equivalent option.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRC

ERIC HUG
PRIMARY EXAMINER